University of California
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SEASONAL LABOR NEEDS FOR CALIFORNIA CROPS

SAN DIEGO COUNTY

Progress Report No. 37

by

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(Farm Labor Survey -- July-December, 1936)

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Seasonal Labor Needs for California Crops

San Diego County

Scope of Presentation.-- The following considerations govern the presentation of this progress report:

1. The data are confined to the area indicated above.

2. The data are confined solely to crops, livestock needs being ignored.

3. The findings apply only to occasional or seasonal labor requirements as distinguished from labor contributed by farm operators and by workers employed on a year-round or regular basis of employment.

4. Attention is concentrated upon workers required for hand tasks -- planting, thinning, weeding, hoeing, and harvesting -- without including teamsters, tractor drivers, irrigators, hay balers, threshermen, and shed packers of vegetables or fruits.

5. The presentation includes the so-called migratory, transient, or roving workers which comprise an important source of help needed in connection with certain tasks and at "peak" times which seasonally arise in connection with many field, truck, and fruit crops commercially produced in California.

6. This report is confined to California's need for seasonal agricultural workers because of the more pressing problems liable to arise in connection therewith. A later study is planned which will deal with other kinds of labor involved in the production of California's many crops.

Crops, Acreage, and Production.-- The basis used in calculating occasional or seasonal need for labor, in addition to that furnished by farm operators and regularly employed workers, appears as table 1.

TABLE 1

Basis for Calculating Seasonal Labor Requirements*
San Diego County

Crop	Acreage	Production
Field crops:		
Alfalfa †	2,500	15,000 tons
Beans -- black-eye	800	5,600 sacks
Lima	19,500	156,000 sacks
Grain -- barley	8,500	93,500 sacks
wheat	900	7,200 sacks
other	500	4,000 sacks
Hay, other than alfalfa	135,000	89,250 tons
Peas -- Garbanzo †	250	2,000 sacks
Silage crop -- mostly corn †	2,300	34,500 tons
Straw, bean		11,145 tons
Sugar beets	285	2,850 tons

Table continued on next page.

Crop	Acreage	Production
Vegetable crops:		
Asparagus	352	31,680 crates
Beans -- string	1,000	5,250,000 pounds
Cabbage †	100	800 tons
Cantaloupes †	100	16,000 crates
Miscellaneous melons †	200	36,000 crates
Carrots †	200	48,000 crates
Other root crops †	200	45,000 crates
Cauliflower	300	85,000 crates
Celery	1,100	496,000 crates
Corn -- green †	750	195,000 lugs
Cucumbers -- table	700	140,000 lugs
Lettuce †	250	32,500 crates
Onions †	60	8,280 sacks
Peas	2,000 ‡	132,700 hampers of 30 pounds
Peppers † -- bell	125	160 tons
chili	200	108 tons dried 80 tons green
pimiento	180	540 tons
Potatoes -- sweet †	100	300 tons
white (spring and winter)	1,200	3,600 tons
(summer)	100	600 tons
Rhubarb †	50	650 tons
Spinach †	50	20,000 - 4 dozen crates
Squash -- Italian and summer	850	91,800 lugs of 28 pounds
winter	200	1,000 tons
Tomatoes -- summer	350	225,000 lugs
fall	600	
early spring †	40	10,000 crates (4 baskets)
Watermelons †	150	900 tons
Other vegetables †	300	
Fruit and nut crops:		
Almonds †	26	11,700 pounds
Apples	828	2,235 tons 200 tons culls
Apricots	506	910 tons
Avocados †	4,683	10,014,440 pounds
Citrus fruits -- grapefruit	389	4,617,702 pounds
lemons	5,303	46,284,000 pounds
limes †	52	624,000 pounds
oranges, navel	4,984	26,517,041 pounds
Valencia	1,576	7,270,142 pounds
miscellaneous citrus †	621	2,610,000 pounds
Figs -- Kadota †	59	35 tons
other †	217	325 tons
Grapes -- raisin	2,382	3,930 tons
table	1,322	4,131 tons
wine	1,515	5,151 tons
Loquats †	38½	154 tons
Olives	1,082	150 tons
Passion fruit	85	1,530,000 pounds
Peaches	686	1,220 tons
Pears	351	340 tons

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Table 1 continued.

Crop	Acreage	Production
Pecans †	21	10,500 pounds
Persimmons	234	444 tons
Plums	113	232 tons
Prickly pears †		165,760 pounds
Prunes, fresh †	65	78 tons
Walnuts	1,448	625 tons
Miscellaneous nuts †	54	
Miscellaneous deciduous fruits †	476	
Miscellaneous sub-tropical fruits †	318	

* Data in table 1 are from Crop Production Estimate -- San Diego County, 1935, by R. R. McLean, Agricultural Commissioner, San Diego County, unless otherwise noted.

† Use of seasonal labor inconseqential and hence ignored.

≠ Acreage of green peas unusually high in 1935. Probably will be considerably less on most years.

Operations Requiring the Use of Seasonal Labor and Times of Need.-- Farm operations requiring the use of seasonal labor for the various crops raised in San Diego County, are indicated in table 2. This table does not include the employing of shed workers needed to wash, pack, and prepare various commodities for shipping and marketing.

TABLE 2

Operations Requiring Use of Seasonal Labor and Times of Need by Crops
San Diego County

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Field crops:				
Beans -- Lima and black-eye	Hoeing (once)	June 1-30 -- all of job	100	2.5 acres
	Piling	August 1-31 -- all of job	100	2 acres
	Threshing (with stationary rig)	August 15-31 -- 50 per cent of job September 1-15 -- 50 per cent of job	75	20 sacks
	Processing (or grading)	*		
Grain -- barley, wheat, etc.	Harvesting with combine	July 1-31 -- all of job	25	5 acres
Hay, other than alfalfa	Preparing land and seeding	November, December, January, February †		
	Mowing (with teams)	May 1-31 -- all of job	66	8 acres
	Raking	May 1-31 -- all of job	66	16 acres
	Shocking	May 1-31 -- all of job	66	30 acres

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Table 1 continued.

Crop	Acreage	Production
Peaches†	21	10,800 pounds
Persimmons	256	444 tons
Plums	118	288 tons
Prickly pears†		165,760 pounds
Prunes, fresh†	68	76 tons
Walnuts	1,468	828 tons
Miscellaneous nuts†	64	
Miscellaneous deciduous fruits†	476	
Miscellaneous sub-tropical fruits†	318	

* Data in table 1 are from Crop Production Estimate -- San Diego County, 1956, by R. R. Nolan, Agricultural Commissioner, San Diego County, unless otherwise noted.

† Use of seasonal labor inconsequential and hence ignored.

‡ Acreage of green peas unusually high in 1956. Probably will be considerably less on most years.

Operations Requiring the Use of Seasonal Labor and Times of Need.-- Farm operations requiring the use of seasonal labor for the various crops grown in San Diego County, are indicated in table 2. This table does not include the employing of shed workers needed to wash, pack, and prepare various commodities for shipping and marketing.

TABLE 2

Operations Requiring Use of Seasonal Labor and Times of Need by Crops
San Diego County

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Field crops:				
Beans -- lima and black-eye	Hoeing (once)	June 1-30 -- all of job	100	2.6 acres
	Plling	August 1-31 -- all of job	100	2 acres
	Thrashing (with stationary rig)	August 15-31 -- 80 per cent of job	75	20 sacks
		September 1-15 -- 80 per cent of job		
	Processing (or grading)	*		
Grain -- barley, wheat, etc.	Harvesting with combine	July 1-31 -- all of job	85	5 acres
Hay, other than alfalfa	Preparing land and seeding	November / December / January / February		
	Mowing (with team)	May 1-31 -- all of job	85	8 acres
	Raking	May 1-31 -- all of job	85	18 acres
	Shocking	May 1-31 -- all of job	85	20 acres

Table continued on next page.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Hay (cont.)	Trimming	May 1-31 -- all of job	66	10 acres
	Baling (80 per cent of crop)	June 15-30 -- one-third of job July 1-31 -- two-thirds of job	80	4 tons
Straw, bean	Baling	September 1-30 -- 50 per cent of job October 1-31 -- 50 per cent of job	80	2 tons
Sugar beets	Thinning	February 1-28 -- 15 per cent of acreage March 1-31 -- 50 per cent of acreage April 1-30 -- 35 per cent of acreage	100	0.5 acre
	Hoeing -- first	April 1-30 -- 50 per cent of acreage May 1-31 -- 50 per cent of acreage	100	1.5 acres
	second	May 1-31 -- 50 per cent of acreage June 1-30 -- 50 per cent of acreage	100	3.0 acres
	Topping and loading	August -- one-third of crop September -- one-third of crop October -- one-third of crop	100	5 tons
Truck crops: Asparagus	Picking	March 1-31 -- 10 per cent of crop April 1-30 -- 30 per cent of crop May 1-31 -- 35 per cent of crop June 1-30 -- 20 per cent of crop July 1-15 -- 5 per cent of crop	100	5 crates ∓ (of 30 pounds) 7-hour day
	Packing	March 1-31 -- 10 per cent of crop April 1-30 -- 30 per cent of crop May 1-31 -- 35 per cent of crop June 1-30 -- 20 per cent of crop July 1-15 -- 5 per cent of crop	100	20 crates
Beans -- string	Hoeing -- once	March 1-31 -- all of acreage	100	10 acres

Table continued on next page.

Crop	Operation	Time of need	Per cent of seasonal help work done by	Output per man-day
Hay (cont.)	Trimming	May 1-31 -- all of job	66	10 acres
	Baling (80 per cent of crop)	June 16-30 -- one-third of job July 1-31 -- two-thirds of job	80	4 tons
Straw, bean	Baling	September 1-30 -- 80 per cent of job October 1-31 -- 80 per cent of job	80	2 tons
Sugar beets	Thinning	February 1-28 -- 15 per cent of acreage March 1-31 -- 80 per cent of acreage April 1-30 -- 35 per cent of acreage	100	0.6 acre
	Hoeing -- first	April 1-30 -- 80 per cent of acreage May 1-31 -- 80 per cent of acreage	100	1.5 acres
	second	May 1-31 -- 80 per cent of acreage	100	3.0 acres
	Topping and loading	August -- one-third of crop September -- one-third of crop October -- one-third of crop	100	8 tons
Truck crops: Asparagus	Picking	March 1-31 -- 10 per cent of crop April 1-30 -- 30 per cent of crop May 1-31 -- 35 per cent of crop June 1-30 -- 20 per cent of crop July 1-15 -- 5 per cent of crop	100	6 crates (of 30 pounds) 7-hour day
	Packing	March 1-31 -- 10 per cent of crop April 1-30 -- 30 per cent of crop May 1-31 -- 35 per cent of crop June 1-30 -- 20 per cent of crop July 1-15 -- 5 per cent of crop	100	20 crates
Beans -- string	Hoeing -- once	March 1-31 -- all of acreage	100	10 acres

Table continued on next page.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Beans -- string (cont.)	Picking	May -- 22 per cent of crop June -- 40 per cent of crop July -- 8 per cent of crop	100	250 pounds
		Balance scattering and inconsequential		
Cauli-flower	Harvesting	April 1-30 -- 60 per cent of crop May 1-31 -- 40 per cent of crop	50	90 crates
	Packing	April 1-30 -- 60 per cent of crop May 1-31 -- 40 per cent of crop	100	125 crates
Celery	Pulling and preparing plants and planting	August 15-31 -- 25 per cent of acreage September 1-30 -- 50 per cent of acreage October 1-15 -- 25 per cent of acreage	50	18 man-days per acre
	Hoeing (twice)	September 1-30 -- all of acreage	50	0.25 acre
		October 1-31 -- all of acreage	50	0.5 acre
	Blanching with paper strips	December 1-31 -- one-third of acreage January 1-31 -- one-third of acreage February 1-28 -- one-third of acreage	25	0.25 acre
	Harvesting	December 15-31 -- 5½ per cent of crop January 1-31 -- 33⅓ per cent of crop February 1-28 -- 33 per cent of crop March 1-31 -- 21 per cent of of crop April 1-15 -- 4½ per cent of crop June 1-30 -- 2½ per cent of crop	100	20 half-crates of 75 pounds
		Sometimes a small amount in May and July		
Peas	Hoeing (once)	February 1-28 -- 50 per cent of job March 1-31 -- 50 per cent of job	100	10 acres
	Picking	October 1-31 -- 10 per cent of crop November 1-30 -- 10 per cent of crop December 1-31 -- 19 per cent of crop January 1-31 -- 37 per cent of crop	100	10 hampers

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Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Peas (cont.)		February 1-28 -- 13 per cent of crop March 1-31 -- 9 per cent of crop		
		Balance scattering and inconsequential		
Potatoes (summer)	Cutting seed -- 10 sacks per acre	February 15-28 -- 50 per cent of job March 1-15 -- 50 per cent of job	50	10 sacks
	Harvesting -- picking up after digger, including field sorting	May 1-31 -- 40 per cent of crop June 1-30 -- 40 per cent of crop July 1-15 -- 20 per cent of crop	100	75 lugs of 35 pounds
Potatoes (winter and spring)	Cutting seed -- 10 sacks per acre	November 15-30 -- 30 per cent of job December 1-31 -- 60 per cent of job January 1-15 -- 10 per cent of job	100	10 sacks
	Hoeing (twice)	February 1-28 -- all of acreage March 1-31 -- all of acreage	100	1.25 acres
	Picking up after machine digger	January 1-31 -- 6 per cent of job February 1-28 -- 11 per cent of job March 1-31 -- 27 per cent of job April 1-30 -- 45 per cent of job May 1-15 -- 11 per cent of job	100	75 lugs of 35 pounds
Squash -- soft (Italian and summer)	Picking	January 1-31 -- 27 per cent of crop February 1-28 -- 10 per cent of crop May 1-31 -- 10 per cent of crop June 1-30 -- 6 per cent of crop November 1-30 -- 10 per cent of crop December 1-31 -- 29 per cent of crop	66	20 lugs
		Balance scattering and inconsequential		
Tomatoes (fall and summer)	Picking	July 1-31 -- 21 per cent of crop August 1-31 -- 42 per cent of crop September 1-30 -- 8 per cent of crop October 1-31 -- 15 per cent of crop November 1-30 -- 8 per cent of crop	100	20 packed lugs of 30 pounds

Table continued on next page.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Tomatoes (fall and summer) -- cont.		December 1-31 -- 4 per cent of crop Inconsequential amounts in June and January		
Fruit and nut crops: Apples	Pruning	January 1-31 -- one-third of job February 1-28 -- one-third of job March 1-31 -- one-third of job	50	0.2 acre
	Thinning -- 50 per cent of acreage	June 1-30 -- two-thirds of job July 1-15 -- one-third of job	100	8 man-days per acre
	Picking	September 7-30 -- 30 per cent of crop October 1-31 -- 35 per cent of crop November 1-30 -- 35 per cent of crop	66	40 boxes of 40 pounds
	Packing -- loose pack	September 7-30 -- 30 per cent of crop October 1-31 -- 35 per cent of crop November 1-30 -- 35 per cent of crop	100	50 boxes of 40 pounds
Apricots	Pruning	January 1-31 -- 50 per cent of job February 1-28 -- 50 per cent of job	100	0.25 acre
	Picking	July 1-20 -- all of crop	100	50 boxes of 25 pounds
Citrus fruits	Spraying (once) -- 90 per cent of acreage	August 1-31 -- one-third of job September 1-30 -- one-third of job October 1-31 -- one-third of job	90	1.0 acre
	Fumigating (once) -- 25 per cent of acreage	August 1-31 -- 15 per cent of job September 1-30 -- 15 per cent of job October) inconsequential November) amount December 1-31 -- 15 per cent of job January 1-31 -- 15 per cent of job February 1-28 -- 15 per cent of job March 1-31 -- 15 per cent of job	100	0.75 acre

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Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Citrus fruits (cont.)		April 1-15 -- 5 per cent of crop		
	Picking lemons	January -- 13 per cent of crop		25 boxes of 40 pounds
		February -- 15 per cent of crop		30 boxes of 40 pounds
		March -- 19 per cent of crop		
		April -- 14 per cent of crop		
		May -- 9 per cent of crop		25 boxes of 40 pounds
		June -- 6 per cent of crop	100**	20 boxes of 40 pounds
		July -- 5 per cent of crop		
		August -- 3 per cent of crop		10 boxes of 40 pounds
		September -- 2 per cent of crop		
		October -- 4 per cent of crop		
		November -- 4 per cent of crop		
		December -- 6 per cent of crop		20 boxes of 40 pounds
	Picking oranges -- all varieties	January -- 8.1 per cent of crop		
		February -- 6.5 per cent of crop		
		March -- 1.8 per cent of crop		
		April -- 2.0 per cent of crop		
		May -- 17.0 per cent of crop		
		June -- 15.4 per cent of crop		
		July -- 13.8 per cent of crop		3,000 pounds
		August -- 10.8 per cent of crop	100**	
		September -- 7.6 per cent of crop		
		October -- 8.3 per cent of crop		
		November -- 6.0 per cent of crop		
		December -- 2.7 per cent of crop		
	Picking grapefruit	April -- 2 per cent of crop		
		May -- 15 per cent of crop		3,600 pounds
		June -- 50 per cent of crop	100**	
		July -- 32 per cent of crop		
		August -- 1 per cent of crop		
Grapes	Pruning	January 1-31 -- 40 per cent of acreage		
		February 1-28 -- 40 per cent of acreage	75	0.5 acre
		March 1-15 -- 20 per cent of acreage		
	Picking and packing for shipment	August 1-31 -- one-half of job	100	50 packed boxes of 23 pounds
		September 1-30 -- one-half of job		

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		Time of mood		
		April 1-15 -- 5 per cent of crop		
		January -- 15 per cent of crop		
		February -- 15 per cent of crop		
		March -- 15 per cent of crop		
		April -- 15 per cent of crop		
		May -- 3 per cent of crop		
		June -- 6 per cent of crop		
		July -- 6 per cent of crop		
		August -- 8 per cent of crop		
		September -- 2 per cent of crop		
		October -- 3 per cent of crop		
		November -- 4 per cent of crop		
		December -- 6 per cent of crop		
		January -- 6.1 per cent of crop		
		February -- 6.6 per cent of crop		
		April -- 8.0 per cent of crop		
		May -- 12.- per cent of crop		
		June -- 12.4 per cent of crop		
		July -- 13.4 per cent of crop		
		August -- 9.- per cent of crop		
		September -- 7.0 per cent of		
		October -- 6.3 per cent of crop		
		November -- 6.0 per cent of		
		December -- 5.7 per cent of		
		April -- 2 per cent of crop		
		May -- 14 per cent of crop		
		June -- 25 per cent of crop		
		July -- 32 per cent of crop		
		August -- 1 per cent of crop		
		January 1-31 -- 60 per cent of		
		February 1-28 -- 40 per cent of		
		March 1-15 -- 20 per cent of		
		August 1-31 -- one-half of job		
		September 1-30 -- one-half of		

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Grapes (cont.)	Picking for wineries	September 1-30 -- 30 per cent of crop October 1-31 -- 50 per cent of crop November 1-31 -- 20 per cent of crop	100	1 ton
Olives	Picking	January 1-31 -- all of job	100	500 pounds
Passion fruit	Picking up -- summer crop	July 1-31 -- 50 per cent of job August 1-31 -- 50 per cent of job	100	60 lugs of 18 pounds net
Peaches	Pruning	December 15-31 -- 20 per cent of acreage January 1-31 -- 40 per cent of acreage February 1-28 -- 40 per cent of acreage	75	0.3 acre
	Thinning	May 20-31 -- one-third of job June 1-20 -- two-thirds of job	100	0.15 acre (10 trees)
	Picking	July 15-31 -- 25 per cent of crop August 1-31 -- 50 per cent of crop September 1-15 -- 25 per cent of crop	100	75 boxes of 25 pounds
	Packing	July 15-31 -- 25 per cent of crop August 1-31 -- 50 per cent of crop September 1-15 -- 25 per cent of crop	100	100 boxes of 27 pounds
Pears	Pruning	January -- one-third of job February -- one-third of job March -- one-third of job	75	0.25 acre
	Picking	August 15-31 -- 50 per cent of job September 1-15 -- 50 per cent of job	75	2,000 pounds
	Packing -- including washing and grading	August 15-31 -- 50 per cent of job September 1-15 -- 50 per cent of job	100	80 lugs of 25 pounds
Persimmons	Picking	November 10-25 -- all of crop	100	50 boxes of 25 pounds
	Packing	November 10-25 -- all of crop	100	50 boxes of 25 pounds
Plums	Picking	July 20-31 -- 70 per cent of crop August 1-4 -- 30 per cent of crop	100	50 boxes of 25 pounds

Table continued on next page.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Walnuts	Knocking off, picking up, and hulling by hand	September 1-30 -- 30 per cent of crop October 1-31 -- 60 per cent of crop November 1-10 -- 10 per cent of crop	100	200 pounds

* Processing or grading beans is done during the fall and winter, usually by women. It is generally in warehouses in towns, but on a few large farms is done at the ranch warehouse.

† On the larger farms a limited amount of seasonal help is used for this work.

‡ Asparagus fields must be picked over each day. This requires one person for each 5 to 10 acres, depending upon how fast the crop is developing, and the output per man-day consequently varies greatly.

§ Requires 6 man-days per acre to set plants in field (35,000 plants per acre). In addition, 12 man-days per acre are required to pull and prepare plants for setting.

¶ Length of day in spraying citrus trees varies greatly with weather, and ranges from 1 to 14 hours. Cannot be done when it is hot or windy. Estimate based on 9-hour day.

‖ Fumigating is done at night, and is greatly dependent upon weather conditions.

** Picking of all citrus fruit has been included as done by seasonal labor. Part of this is done by "skeleton crews," however, who are kept busy more or less steadily throughout the year on a piece work or per day basis.

Findings of Seasonal Labor Needs.-- Details and summaries of seasonal labor requirements of San Diego County agriculture are presented as table 3. The "size of task" are figures drawn from table 1 in terms of either acreage, or output in tons, crates, boxes, or whatever unit is commonly used. The "output per man-day" is an average figure for the entire acreage or output figured in packed crates, hampers, or boxes (in case of fruits and vegetables). If the work is of a nature that requires a crew, different members of which perform different tasks (such as cutting, trimming, loading, and hauling cauliflower; trimming and crating celery, etc.), then the average shown is per man based on the entire crew. Length of day is 9 hours unless otherwise stated. Wide variations in output occur between farm and farm, field and field, and season and season, because of differences in soil types, climatic conditions, weeds, yields, and other factors influencing the amount of work that a laborer can perform in a given day. Moreover, the basis of output is a mature, experienced male worker without reference to use of women, children, and more or less inexperienced help that is sometimes used in connection with certain of the tasks requiring use of seasonal workers. The column headed "available days" reflects (a) limitations set from the period within which the work must be performed because of the nature of the task, such as transplanting, thinning, weeding, and cutting, and (b) available days as determined by weather conditions, inclement weather reducing the number of

days when a required task can be performed. The "required number of individuals" is given in terms of workers as noted above in connection with "output per man-day."

It is probable that the estimated number of workers required, as recorded in table 3, will often be too low, for the reason that "peaks" frequently occur, during which an unusually large proportion of the job is done in a very short period. This would naturally require a much greater number of workers than when the work is spread over a longer period, even though the total amount of labor (in man-days) remains the same.

TABLE 3

Seasonal Labor Needs -- San Diego County -- by Months and Tasks

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
January	Celery: Blanching with paper strips	92 acres †	0.25 acre	368	20	19
	Harvesting	166,160 crates	20 crates	8,308	20	416
	Peas: Picking	49,099 hampers	10 hampers	4,910	20	246
	Potatoes (winter and spring): Cutting seed	1,200 sacks	10 sacks	120	10	12 (from 1-15)
	Picking up after digger	216 tons	75 lugs ‡	165	20	9
	Squash (soft): Picking	16,359 lugs †	20 lugs	818	20	41
	Apples: Pruning	138 acres †	0.2 acre	690	20	35
	Apricots: Pruning	253 acres	0.25 acre	1,012	20	51
	Citrus fruits: Fumigating	460 acres	0.75 acre	614	20	31
	Picking lemons	6,016,920 pounds	25 boxes §	6,017	20	301
	Picking oranges	2,736,762 pounds	3,000 pounds	913	20	46
	Grapes: Pruning	1,566 acres †	0.5 acre	3,132	20	157
	Olives: Picking	150 tons	500 pounds	600	20	30
	Peaches: Pruning	206 acres †	0.3 acre	687	20	35
	Pears: Pruning	88 acres †	0.25 acre	352	20	18
				28,706	20	1,436 man-months ¶
February	Sugar beets: Thinning	43 acres	0.5 acre	86	22	4
	Celery: Blanching with paper strips	91 acres †	0.25 acre	364	22	17
	Harvesting	163,680 crates	20 crates	8,184	22	372
	Peas: Hoeing	1,000 acres	10 acres	100	22	5
	Picking	17,251 hampers	10 hampers	1,726	22	79
	Potatoes (summer): Cutting seed	250 sacks †	10 sacks	25	11	3 (from 15-28)
	(winter and spring): Hoeing	1,200 acres	1.25 acres	960	22	44
	Picking up after digger	396 tons	75 lugs ‡	302	22	14
	Squash (soft): Picking	6,059 lugs †	20 lugs	303	22	14
	Apples: Pruning	138 acres †	0.2 acre	690	22	32
	Apricots: Pruning	253 acres	0.25 acre	1,012	22	46
	Citrus fruits: Fumigating	460 acres	0.75 acre	614	22	28
	Picking lemons	6,942,600 pounds	30 boxes §	5,786	22	263
	Picking oranges	2,196,167 pounds	3,000 pounds	733	22	34

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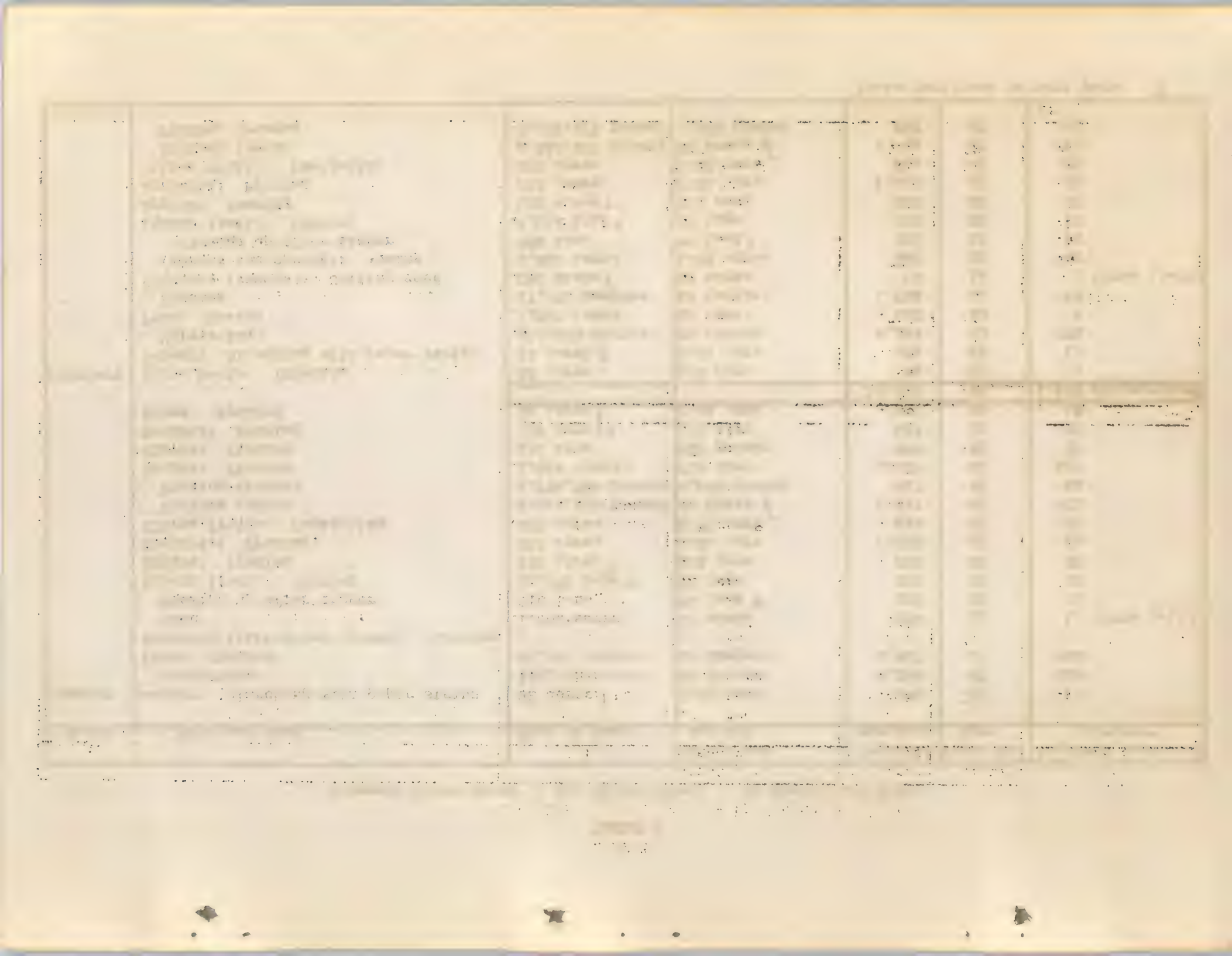

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
February (cont.)	Grapes: Pruning	1,566 acres†	0.5 acre	3,132	22	143
	Peaches: Pruning	206 acres†	0.3 acre	687	22	32
	Pears: Pruning	88 acres†	0.25 acre	352	22	16
				25,056	22	1,139 man-months¶
March	Sugar beets: Thinning	142 acres	0.5 acre	284	24	12
	Asparagus: Picking	3,168 crates	5 crates	634	24	27
	Packing	3,168 crates	20 crates	159	24	7
	Beans, string: Hoeing	1,000 acres	10 acres	100	24	5
	Celery: Harvesting	104,160 crates	20 crates	5,208	24	217
	Peas: Hoeing	1,000 acres	10 acres	100	24	5
	Picking	11,943 hampers	10 hampers	1,195	24	50
	Potatoes (summer): Cutting seed	250 sacks †	10 sacks	25	12	3 (from 1-15)
	(winter and spring): Hoeing	1,200 acres	1.25 acres	960	24	40
	Picking up after digger	972 tons	75 lugs ‡	741	24	31
	Apples: Pruning	138 acres†	0.2 acre	690	24	29
	Citrus fruits: Fumigating	460 acres	0.75 acre	614	24	26
	Picking lemons	8,793,960 pounds	30 boxes §	7,329	24	306
	Picking oranges	608,170 pounds	3,000 pounds	203	24	9
	Grapes: Pruning	783 acres†	0.5 acre	1,566	12	131 (from 1-15)
	Pears: Pruning	88 acres†	0.25 acre	352	24	15
				20,160	24	840 man-months¶
April	Sugar beets: Thinning	100 acres	0.5 acre	200	24	9
	Hoeing (first time)	142 acres	1.5 acres	95	24	4
	Asparagus: Picking	9,504 crates	5 crates	1,901	24	80
	Packing	9,504 crates	20 crates	476	24	20
	Cauliflower: Harvesting	25,500 crates†	90 crates	284	24	12
	Packing	51,000 crates	125 crates	408	24	17
	Celery: Harvesting	22,320 crates	20 crates	1,116	12	93 (from 1-15)
	Potatoes (winter and spring): Picking up after digger	1,620 tons	75 lugs ‡	1,235	24	52
	Citrus fruits: Fumigating	150 acres	0.75 acre	200	12	17 (from 1-15)
	Picking lemons	6,479,760 pounds	30 boxes §	5,400	24	225
	Picking oranges	675,744 pounds	3,000 pounds	226	24	10
	Picking grapefruit	92,354 pounds	3,600 pounds	26	24	2
				11,567	24	482 man-months¶

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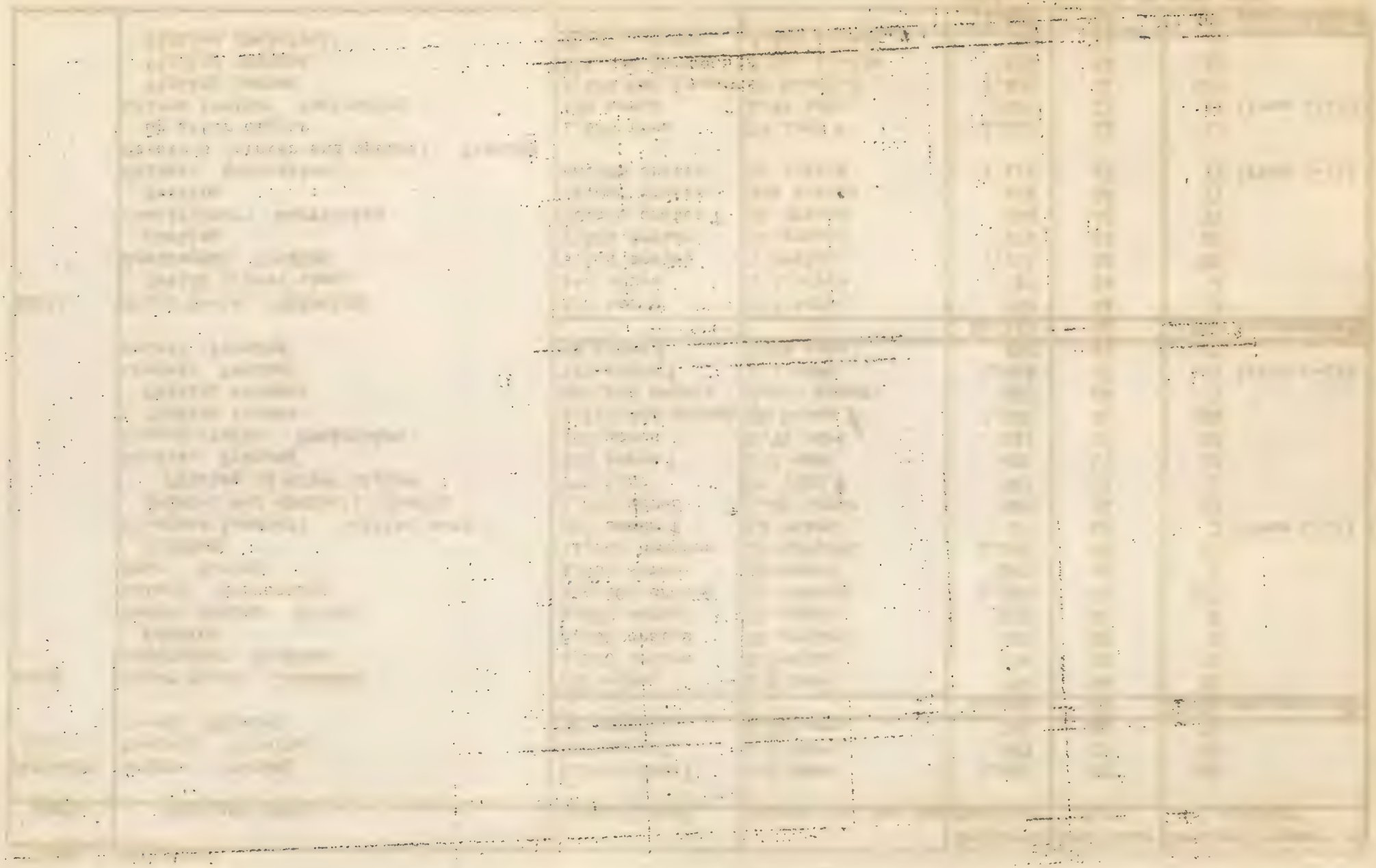

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
May	Hay (other than alfalfa): Mowing	89,100 acres †	8.0 acres	11,138	25	446
	Raking	89,100 acres †	16.0 acres	5,569	25	223
	Shocking	89,100 acres †	30.0 acres	2,970	25	119
	Trimming	89,100 acres †	10.0 acres	8,910	25	357
	Sugar beets: Hoeing (first time)	143 acres	1.5 acres	96	25	4
	(second time)	143 acres	3.0 acres	48	25	2
	Asparagus: Picking	11,088 crates	5.0 crates	2,218	25	89
	Packing	11,088 crates	20 crates	555	25	23
	Beans, string: Picking	1,155,000 pounds	250 pounds	4,620	25	185
	Cauliflower: Harvesting	17,000 crates †	90 crates	189	25	8
	Packing	34,000 crates	125 crates	272	25	11
	Celery: Harvesting	12,400 crates	20 crates	620	25	25
	Potatoes (summer): Harvesting	240 tons	75 lugs ‡	183	25	8
	(winter and spring): Picking up after digger	396 tons	75 lugs ‡	302	12	26 (from 1-15)
	Squash (soft): Picking	6,059 lugs †	20 lugs	303	25	13
	Citrus fruits: Picking lemons	4,165,560 pounds	25 boxes ♂	4,166	25	167
	Picking oranges	5,743,821 pounds	3,000 pounds	1,915	25	77
	Picking grapefruit	692,655 pounds	3,600 pounds	193	25	8
	Peaches: Thinning	229 acres	0.15 acre	1,527	9	170 (from 20-31)
				45,794	25	1,832 man-months ¶
June	Beans -- Lima and black-eye: Hoeing	20,300 acres	2.5 acres	8,120	25	325
	Hay (other than alfalfa): Baling	19,040 tons †	4.0 tons	4,760	13	367 (from 15-30)
	Sugar beets: Hoeing (second time)	142 acres	3.0 acres	48	25	2
	Asparagus: Picking	6,336 crates	5.0 crates	1,268	25	51
	Packing	6,336 crates	20 crates	317	25	13
	Beans, string: Picking	2,100,000 pounds	250 pounds	8,400	25	336
	Potatoes (summer): Harvesting	240 tons	75 lugs ‡	183	25	8
	Squash (soft): Picking	3,635 lugs †	20 lugs	182	25	8
	Apples: Thinning	552 acres	〃	4,416	25	177
	Citrus fruits: Picking lemons	2,777,040 pounds	20 boxes ♂	3,472	25	139
	Picking oranges	5,203,225 pounds	3,000 pounds	1,735	25	70
	Picking grapefruit	2,308,850 pounds	3,600 pounds	642	25	26
	Peaches: Thinning	457 acres	0.15 acre	3,047	16	191 (from 1-20)
				36,590	25	1,464 man-months ¶

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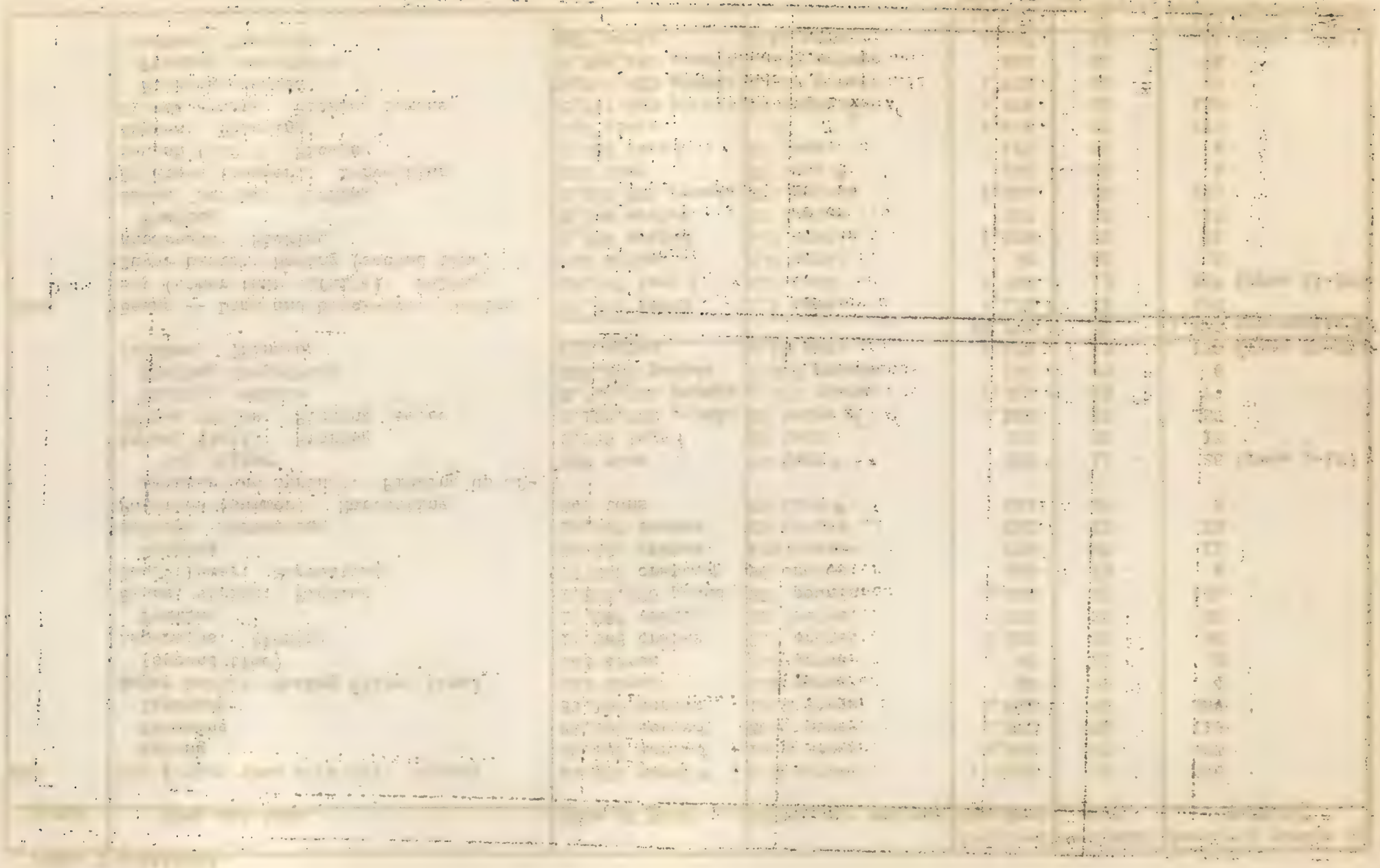

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
July	Grain: Harvesting with combine	2,475 acres †	5.0 acres	495	26	20
	Hay (other than alfalfa): Baling	38,080 tons †	4.0 tons	9,520	26	367
	Asparagus: Picking	1,584 crates	5.0 crates	317	26	13
	Packing	1,584 crates	20.0 crates	80	26	4
	Beans, string: Picking	420,000 pounds	250 pounds	1,680	26	65
	Potatoes (summer): Harvesting	120 tons	75 lugs ‡	92	13	8 (from 1-15)
	Tomatoes: Picking	47,250 lugs	20 lugs	2,363	26	91
	Apples: Thinning	276 acres	〃	2,208	13	170 (from 1-15)
	Apricots: Picking	910 tons	50 boxes of 25 pounds	1,456	17	86 (from 1-20)
	Citrus fruits: Picking lemons	2,314,200 pounds	20 boxes ♂	2,893	26	112
	Picking oranges	4,662,630 pounds	3,000 pounds	1,555	26	60
	Picking grapefruit	1,477,665 pounds	3,600 pounds	411	26	16
	Passion fruit: Picking up	765,000 pounds	60 lugs**	709	26	28
	Peaches: Picking	305 tons	75 boxes ††	326	13	26 (from 15-31)
	Packing	305 tons	100 boxes ‡‡	226	13	18 (from 15-31)
	Plums: Picking	162 tons	50 boxes ††	260	9	29 (from 20-31)
				24,591	26	946 man-months ¶
August	Beans -- Lima and black-eye: Piling	20,300 acres	2.0 acres	10,150	25	406
	Threshing	60,600 sacks †	20 sacks	3,030	13	234 (from 15-31)
	Sugar beets: Topping and loading	950 tons	5.0 tons	190	25	8
	Celery: Pulling and preparing plants and planting	138 acres †	♂♂	2,484	13	192 (from 15-31)
	Tomatoes: Picking	94,500 lugs	20 lugs	4,725	25	189
	Citrus fruits: Spraying	3,308 acres †	1.0 acre	3,308	25	133
	Fumigating	460 acres	0.75 acre	614	25	25
	Picking lemons	1,388,520 pounds	10 boxes ♂	3,472	25	139
	Picking oranges	3,649,015 pounds	3,000 pounds	1,217	25	49
	Picking grapefruit	46,177 pounds	3,600 pounds	13	25	1
	Grapes: Picking and packing for shipment	2,065 tons	50 boxes ¶¶	3,592	25	144
	Passion fruit: Picking up	765,000 pounds	60 lugs**	709	25	29
	Peaches: Picking	610 tons	75 boxes ††	651	25	27
	Packing	610 tons	100 boxes ‡‡	452	25	19

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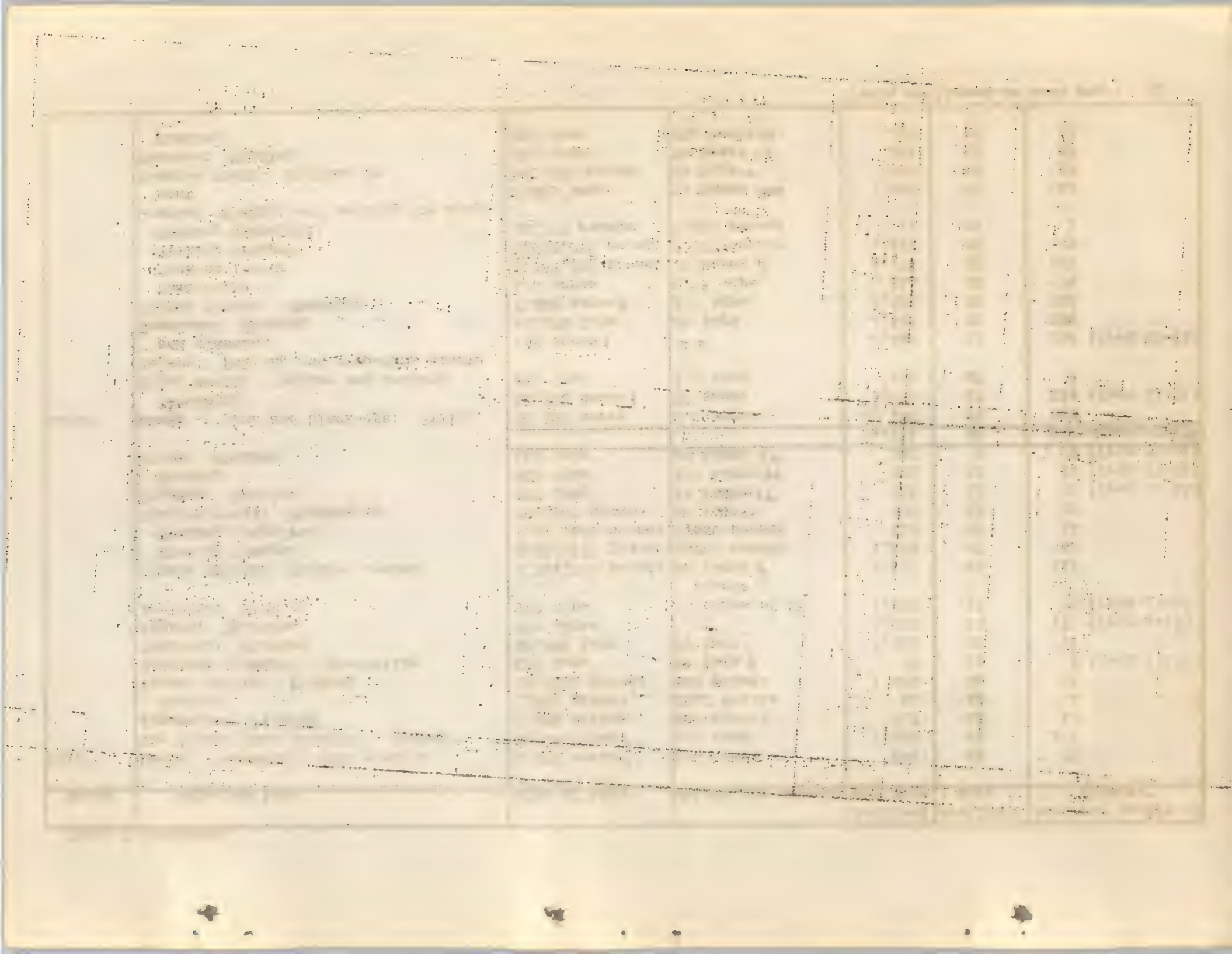

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
August (cont.)	Pears: Picking	127 tons †	1.0 ton	127	12	11 (from 15-31)
	Packing	170 tons	80 lugs ‖ ‖	170	12	15 (from 15-31)
	Plums: Picking	70 tons	50 boxes ††	112	4	28 (from 1-4)
				35,016	25	1,401 man-months ¶
September	Beans -- Lima and black-eye: Threshing	60,600 sacks †	20 sacks	3,030	13	234 (from 1-15)
	Straw, bean: Baling	4,458 tons †	2 tons	2,229	26	86
	Sugar beets: Topping and loading	950 tons	5.0 tons	190	26	8
	Celery: Pulling and preparing plants and planting	275 acres †	¶¶	4,950	26	191
	Hoeing	550 acres †	0.25 acre	2,200	26	85
	Tomatoes: Picking	18,000 lugs	20 lugs	900	26	35
	Apples: Picking	483 tons †	40 boxes ♂	604	20	31 (from 7-30)
	Packing	731 tons	50 boxes ♂	731	20	37 (from 7-30)
	Citrus fruits: Spraying	3,308 acres †	1.0 acre	3,308	26	128
	Fumigating	460 acres	0.75 acre	614	26	24
	Picking lemons	925,680 pounds	10 boxes ♂	2,315	26	90
	Picking oranges	2,567,826 pounds	3,000 pounds	856	26	33
	Grapes: Picking and packing for shipment	2,066 tons †	50 boxes ¶¶	3,593	26	139
	Picking for wineries	2,725 tons	1.0 ton	2,725	26	105
	Peaches: Picking	305 tons	75 boxes ††	326	13	26 (from 1-15)
	Packing	305 tons	100 boxes ##	226	13	18 (from 1-15)
	Pears: Picking	128 tons †	1.0 ton	128	13	10 (from 1-15)
	Packing	170 tons	80 lugs ‖ ‖	170	13	14 (from 1-15)
	Walnuts: Harvesting	188 tons	200 pounds	1,880	26	73
				30,975	26	1,192 man-months ¶
October	Straw, bean: Baling	4,458 tons †	2.0 tons	2,229	26	86
	Sugar beets: Topping and loading	950 tons	5.0 tons	190	26	8
	Celery: Pulling and preparing plants and planting	137 acres †	♂♂	2,466	13	190 (from 1-15)
	Hoeing	550 acres †	0.5 acre	1,100	26	43
	Peas: Picking	13,270 hampers	10.0 hampers	1,327	26	52
	Tomatoes: Picking	33,750 lugs	20 lugs	1,688	26	65
	Apples: Picking	562 tons †	40 boxes ♂	703	26	28
	Packing	852 tons	50 boxes ♂	852	26	33

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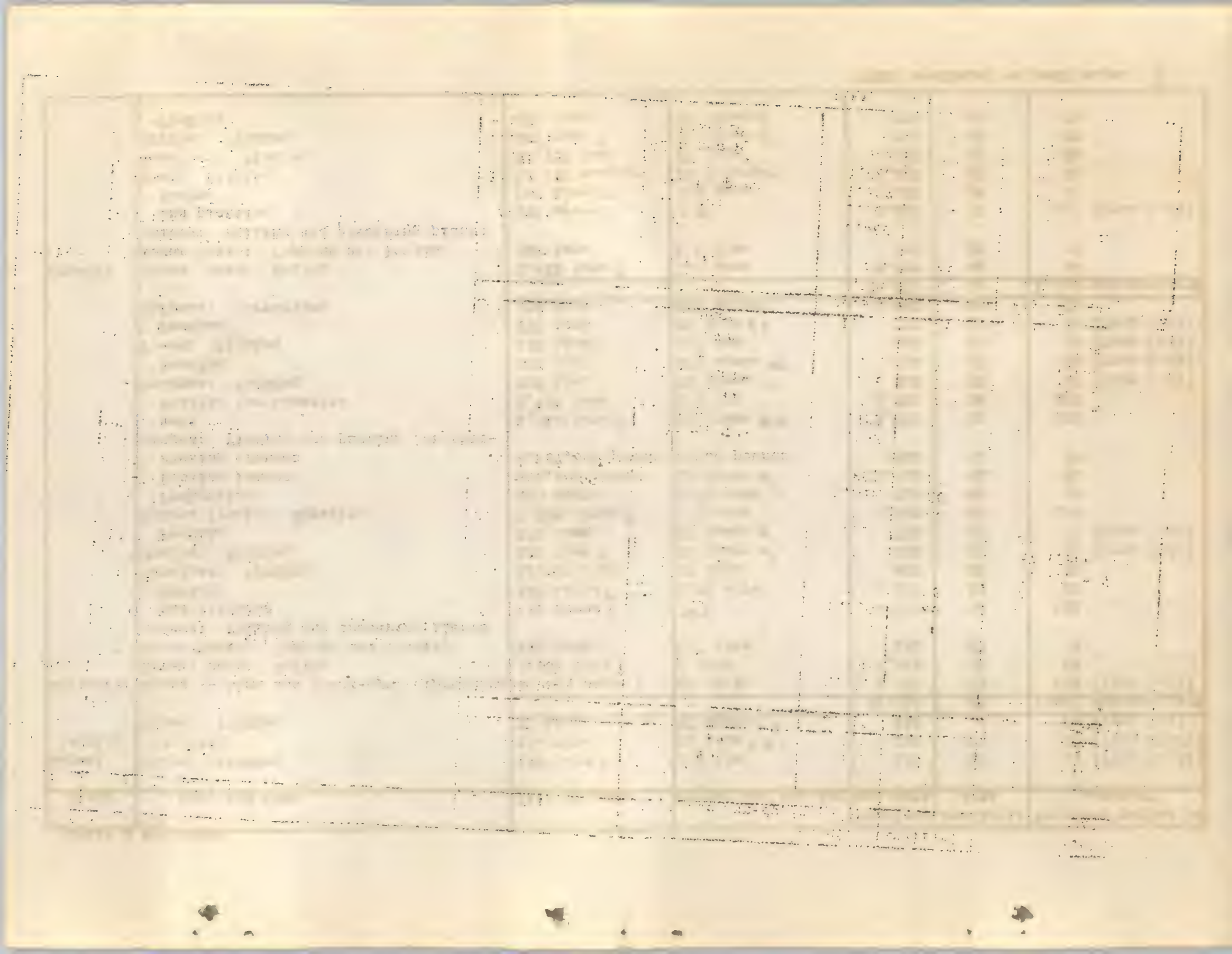

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
October (cont.)	Citrus fruits: Spraying	3,308 acres †	1.0 acre	3,308	26	128
	Picking lemons	1,851,360 pounds	10 boxes	4,629	26	179
	Picking oranges	2,804,336 pounds	3,000 pounds	935	26	36
	Grapes: Picking for wineries	4,540 tons	1.0 ton	4,540	26	175
	Walnuts: Harvesting	375 tons	200 pounds	3,750	26	145
				27,717	26	1,067 man-months
November	Peas: Picking	13,270 hampers	10 hampers	1,327	24	56
	Potatoes (winter and spring): Cutting seed	3,600 sacks	10 sacks	360	12	30 (from 15-30)
	Squash (soft): Picking	6,059 lugs †	20 lugs	303	24	13
	Tomatoes: Picking	18,000 lugs	20 lugs	900	24	38
	Apples: Picking	562 tons †	40 boxes	703	24	30
	Packing	852 tons	50 boxes	852	24	36
	Citrus fruits: Picking lemons	1,851,360 pounds	10 boxes	4,629	24	193
	Picking oranges	2,027,230 pounds	3,000 pounds	676	24	29
	Grapes: Picking for wineries	1,816 tons	1.0 ton	1,816	24	76
	Persimmons: Picking	444 tons	50 boxes ††	711	12	60 (from 10-25)
	Packing	444 tons	50 boxes ††	711	12	60
	Walnuts: Harvesting	62 tons	200 pounds	620	8	78 (from 1-10)
				13,608	24	567 man-months
December	Celery: Blanching with paper strips	92 acres †	0.25 acre	368	22	17
	Harvesting	27,280 crates	20 crates	1,364	11	124[a] (from 15-31)
	Peas: Picking	25,213 hampers	10 hampers	2,522	22	115
	Potatoes (winter and spring): Cutting seed	7,200 sacks	10 sacks	720	22	33
	Squash (soft): Picking	7,570 lugs †	20 lugs	379	22	18
	Tomatoes: Picking	9,000 lugs	20 lugs	450	22	21
	Citrus fruits: Fumigating	460 acres	0.75 acre	614	22	28
	Picking lemons	2,777,040 pounds	20 boxes	3,472	22	158
	Picking oranges	912,254 pounds	3,000 pounds	305	22	14
	Peaches: Pruning	103 acres †	0.3 acre	344	11	32 (from 15-31)
				10,538	22	479 man-months

* On a monthly basis unless otherwise noted.

† Portion of job done by seasonal workers.

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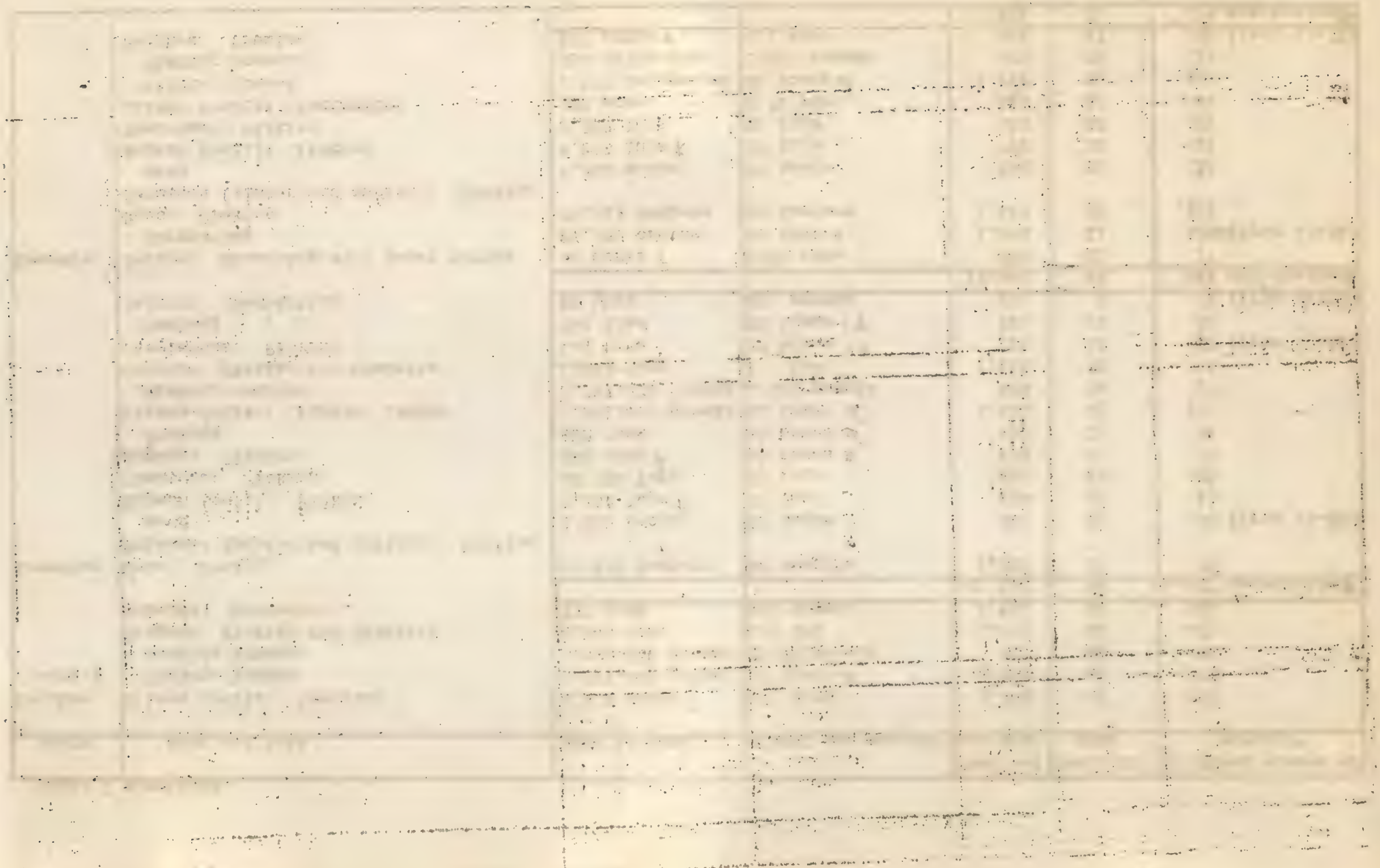


Table 3 continued.

‡ Lugs of 35 pounds net weight.

§ Boxes of approximately 40 pounds net weight.

¶ It should be noted that this figure, rather than representing the required number of individuals, represents the required man-months of seasonal labor, and is derived by dividing the total number of man-days by the total number of days available for work during the month.

|| Thinning apples requires 8 man-days per acre.

** Lugs of 18 pounds net weight.

†† Boxes of 25 pounds net weight.

‡‡ Boxes of 27 pounds net weight.

§§ Pulling and preparing and planting celery plants requires 18 man-days per acre.

¶¶ Packed boxes of 23 pounds net weight.

|| || Lugs of 25 pounds net weight.

a/ Peak daily shipments of celery at Chula Vista are normally around 20 cars, requiring about 400 field workers and 50 or 60 shed packers. Shipments may reach 30 to 35 cars per day at times, however, which would considerably increase the demand for labor.

TABLE 4

Summary of Seasonal Labor Needs by Months
San Diego County
1935

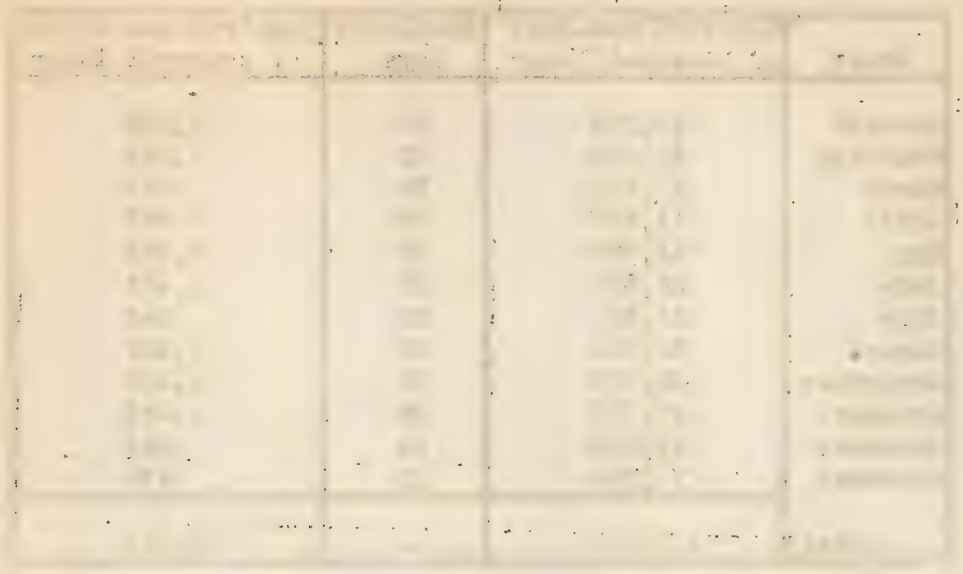
Month	Required man-days of seasonal labor	Available days	Required man-months of seasonal labor
January	28,706	20	1,436
February	25,056	22	1,139
March	20,160	24	840
April	11,567	24	482
May	45,794	25	1,832
June	36,590	25	1,464
July	24,591	26	946
August	35,016	25	1,401
September	30,975	26	1,192
October	27,717	26	1,067
November	13,608	24	567
December	10,538	22	479
Total	310,318	--	12,845

Notes

Notes on Table 2.-- Data concerning "time of need," as shown in this table, break down recuired seasonal labor into the period when the work is performed in order to permit a subsequent determination of labor needs by months (table 3). Some operations are performed only to a limited extent by seasonal workers. For instance, only about 25 per cent of the labor in harvesting grain is done by seasonal workers. When a job extends over several different months, the proportionate amount for each month is shown.

The amount of work done each month is based on the cropping system followed during 1935. The allotting of amounts of work is based on findings concerning local farm practices and required time to "make" a crop, resulting from inquiry of producers, and records of shipments, the latter proving helpful in fixing dates of planting and subsequent tasks involved in producing a given crop. Proportionate amounts of output harvested each month were determined from data of local practices with respect to harvesting, and from carlot shipments of perishable products. Records of truck shipments were also used when available.

Notes on Table 3.-- Table 3 is the condensed summary of labor needs as worked out for San Diego County, as a result of findings pertinent to 1935. The data are presented by months with the tasks which were performed in each month indicated by both crop and task. The size of the job was calculated from the data appearing in table 1 (acreage and production) and table 2 (task, time of performance, and percentage of work pertinent to a given month). The output per man-day was calculated as indicated in the foreword presenting table 3. The number of required man-days is a result of dividing the size of task by output per man-day. The available days for the different tasks involve two variables. The first is the number of days when field work is possible because of favorable weather conditions. The basis for this column was determined from a study of the monthly weather charts of the United States Weather Bureau for the years 1933, 1934, and 1935. These data indicated available days per month as follows (based on a 26-day working month without allowance for holidays):



Month	Available days	Length of work day	Month	Available days	Length of work day
		hours			hours
January	20	9	July	26	9
February	22	9	August	25	9
March	24	9	September	26	9
April	24	9	October	26	9
May	25	9	November	24	9
June	25	9	December	22	9

Source of data: Based on precipitation records of the El Cajon station of the United States Weather Bureau for the years 1933, 1934, and 1935.

The second factor influencing the number of available days was the size of the job. If the output was but for a few cars, then the number of days was limited to the time needed to get out these cars efficiently. If a field operation had to be performed in a period less than the number of available days in the month, then the specific number of days was noted. These restrictions are shown in parentheses. For example, in July, picking of apricots was limited to the first twenty days of the month; picking peaches to the last half, etc.

The totals of table 3 show the total required man-days of needed seasonal labor, the available days for field work during the month, and the number of men (as defined in the opening paragraph of table 3) required on a monthly basis to care for the tasks ordinarily performed by seasonal workers.

In an area such as San Diego County, involving a substantial acreage of truck crops, the findings as set forth in this report are bound to fluctuate materially from year to year, because of the influence of market outlook upon what and how much acreage is planted, and when it is planted; because of variable seasonal conditions affecting yields, times of performing operations, and available days; and because of harvesting operations on certain crops being speeded up to supply a good market or retarded to avoid a poor one, resulting in marked variations in the need for harvest labor.